

Claims

1. A device for ejecting foam from the shower head with controlled soap dosage, characterized in that there is provided means to mix the water for the shower, already at the desired temperature, with air and a predetermined amount of soap, soap foam, shampoo and the like in order to form a thick, uniform foam directly ejected from the shower head.

2. The device according to the preceding claim, characterized in that there is essentially included one or more reservoirs for liquid soap (A, B), means (PA, PB) to deliver a predetermined amount of liquid soap from such reservoirs, means to intake air together with such amount of soap, and means to mix soap and air sucked together with water before the latter is ejected from the shower head.

3. The device according to the preceding claim, characterized in that each reservoir (A, B) is provided with a respective control pushbutton (PA, PB) controlling means of the known type to deliver a predetermined amount of soap from the respective reservoir, thus causing the soap to fall to a suitable conveyer (C) placed under the reservoirs and consisting of a small funnel or hopper and to flow inside it until the input of said suction means is reached.

4. The device according to the preceding claim, characterized in that said suction means and said mixing means consist of a diluter-mixer (D) including a Venturi tube which creates a depression when it is crossed longitudinally by the pressurized water flow at the temperature of use causing soap and air to be sucked from the suction pipe (1) the input of which is connected from the outside to the lower base of the conveyer (C), thus causing the soap water to come out of diluter (D) and to reach the shower head in the form of a mix of foam and liquid through a hose of the known type.

5. The device according to the preceding claim, characterized in that there is provided a switch (DEV) controlled by the user and able to switch water, already at the temperature of use, alternately to diluter (D) or directly to the shower head, thus bypassing the diluter for rinsing.

6. The device according to claim 4 or 5, characterized in that diluter (D) is provided with a nozzle (U) which reduces the section of the input water flow to the suction pipe (1) which intakes liquid soap and air to form a foam fed by the diluter to the shower head.

7. The device according to claim 5, characterized in that suction pipe (1) is provided with a check valve which allows soap and air to enter diluter (D) during the suction only, and at the same time prevents water

from being fed by the suction pipe when switch (DEV) is the rinsing position.

5 8. The device according to any claim from 4 on, characterized in that in order to cause the flow of soap or shampoo to the lowest portion of conveyer (C) at the input of suction pipe (1) to be slow enough so that the intake through pipe 1 causes air to be sucked together with soap, thus allowing the formation of
10 foam within the soap water that reaches shower head (S), the inside walls of conveyer (C) have an inclination with respect to the horizontal which is lower than or equal to 30°.

15 9. The device according to the preceding claim, characterized in that the inside of conveyer (C) is shaped stepwise so that the soap is caused to slow down towards the suction pipe (1) at the base of the conveyer.

20 10. The device according to any claim from 4 on, characterized in that diluter-mixer (D) is placed either horizontally or vertically, achieving in any case the same efficiency.

25 11. The device according to any claim from 4 on, characterized in that the diameter of the suction pipe (1) or its input hole is as large as 0.7 to 1.9 mm, preferably 1 to 1.3 mm.

12. The device according to claim 6, characterized in that in addition to suction pipe (1) there is also provided a further secondary suction pipe having a diameter lower than or equal to 1 millimetre, which connects the outside to suction pipe (1) or the area near the outlet of nozzle U so as to guarantee the continuous intake of air by diluter-mixer D, even if a large amount of liquid is collected at the bottom of conveyer (C), thus mitigating the soap and air suction through pipe (1).

13. The device according to any claim from 3 on, characterized in that there is provided a small pipe or additional pipe (CA) separated from the soap reservoirs and particularly suitable to carry substances added extemporaneously by the user, such as essential oils, smelling essences, etc., directly to conveyer (C), said additional pipe (CA) being connected to a small recess formed in the lid of said soap reservoirs in which the user pours the desired smelling essence or the essential oil so that it can be sprinkled to his or her body together with water from shower.

14. The device according to any preceding claim, characterized in that several air and soap suction orifices are provided that can be coincident or separated.

15. The device according to claim 6, characterized in

that needle means are provided to unclog nozzle (U) in case of clogging which can be of course made in one piece with the body of diluter (D).

5 16. The device according to claim 6, characterized in that the intake rate at which soap and air are sucked through suction pipe (1) can be adjusted by arranging suitable means of the known type to displace nozzle (U) back and forth to the axial direction so as to
10 change its position with respect to the longitudinal axis of suction pipe (1).

17. The device according to claim 12, characterized in that said further secondary air suction pipe is
15 provided with means of the known type to adjust its opening so as to change at will the amount of water which is sucked through it and then also the amount of the air and soap suction force of suction pipe (1).

20 18. The device according to claim 2, characterized in that each reservoir (A, B) is provided with a respective control pushbutton (PA, PB) which operates means of the known type to deliver a predetermined amount of soap, shampoo, balsam or other detergent
25 liquid, and includes an output pipe connected to a reservoir or tank from which the mixing means intakes directly soap and air during the operation, the air reaching this reservoir or tank through a further pipe which is connected to an upper hopper in the open air.

19. The device according to the preceding claim, characterized in that said hopper can also be used by the user to pour smelling essences or essential oils so that they can be sprinkled to his or her body at the end of his or her taking a shower, or temporarily a detergent liquid different from those contained in the reservoirs.

20. The device according to the preceding claim, characterized in that said mixing means consists of a Venturi tube arranged in a rotating switch (11) together with a corresponding length of free duct, the water flow which is already at the desired temperature flowing alternately through said Venturi tube or said length of free duct.

21. The device according to the preceding claim, characterized in that switch (11) has an essentially cylindrical body including both Venturi tube and the length of the free duct parallel to each other and provided with a suction orifice connected to the reservoir and an inlet orifice connected to the same non-soaped water reservoir, respectively, both soaping and rinsing positions being set by rotating by 180° the switch which connects alternately Venturi tube or the length of free duct to the water circuit.

22. The device according to the preceding claim, characterized in that the longitudinal axes of said Venturi tube and said length of free duct included in

the switch are perpendicular to the axis of the rotating switch and spaced uniformly therefrom.

23. The device according to the preceding claim, characterized in that when rotating switch (11) is in the position in which water flows through Venturi tube, soap and air are sucked so that a foam soaping the user is streaming of the shower, and when switch is in the position in which water flows through the length of free duct, water streaming out of the shower is not mixed with soap and the user can rinse himself.

24. The device according to the preceding claim, characterized in that said length of free duct is connected to liquid soap reservoir (from which Venturi tube exerted its suction action during its operation) so that when the user set the switch to the rinsing position, thus bypassing the Venturi tube and adding the length of tube to the path of water at the desired temperature, a little amount of water without soap flows continuously in the opposite direction into reservoir and through the duct which connects it to the upper hopper so that water overflows from the latter and outside the device, thus accomplishing a complete and effective washing and rinsing of the device so that traces of the detergent products used before whose essences or type could not be enjoyed by the following user of the device are not present at every use.

25. The device according to the preceding claim, characterized in that the diameter of the connecting pipe between the Venturi tube and the reservoir and the diameter of the connecting pipe between the latter and the length of the free duct are, for example, 1/10 to 1/3 as large as the diameter of Venturi tube or the free duct.

26. The device according to claim 24 or 25, characterized in that in order to provide a partial recycling of the soaped water so that the dilution of the soap is increased, a further pipe is provided with a very small section, preferably 1/10 to 1/3 as small as that of the water outlet pipe connected to the shower head, such pipe "tapping" the partial amount of water mentioned above from the outlet pipe and feeding it directly to the lower portion of air suction hopper 12 through which such recycling water amount is sucked by the Venturi tube again and mixed to the detergent product and the inlet water.

27. The device according to the preceding claim, characterized in that said recycling is controlled by the user by a suitable knob located between the tapping orifice and the upper hopper.

28. The device according to any claim from 18 on, characterized in that as an alternative to the two reservoirs for the soap or detergent liquid, there is only provided the upper hopper connected directly to

the reservoir the content of which is sucked by the mixing means together with air.